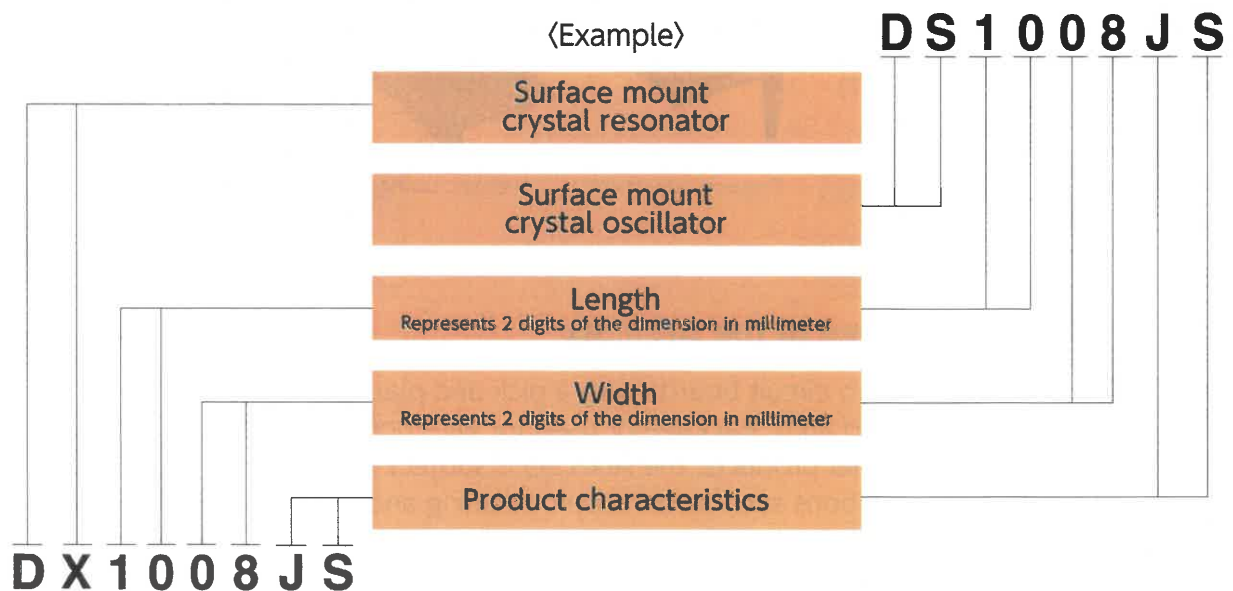
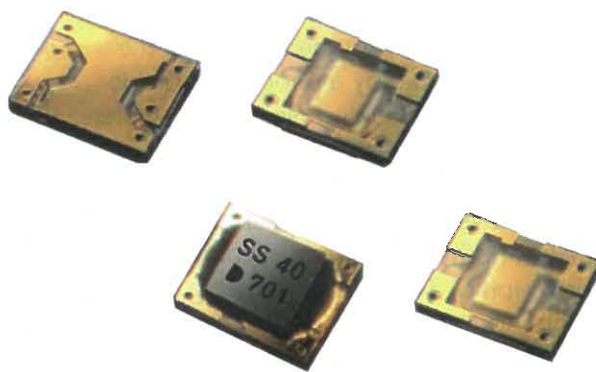


Quartz Devices

Arkh.3G series



Arkh.3G SERIES

About Arkh.3G



Arkh.3G

The brand name "Arkh" is from arkhitekton, the Latin word from which architecture is derived. The Arkh.3G is a quartz crystal device that uses a completely novel third-generation (3G) structure. The implication of the use of architecture instead of the simpler structure represents our desire to express that the product is based on a more definite strategy and concept than before.

About the Structure and Manufacturing Process of the Arkh.3G

In the conventional structure, a quartz crystal element is held in a ceramic package by means of a conductive adhesive. In contrast, the Arkh.3G is arranged in a three-layer structure consisting of a lid, resonator, and base, the host of which is quartz crystal. With the outlines of the resonator and other parts having been formed by a photolithographic process, three quartz crystal wafers are bonded and diced into a wafer-level package. Thus the holder and resonator parts are formed into an integrated structure without the use of a conductive adhesive. This design has solved the challenges that the conventional structure needed to meet for product size reduction, namely, improved accuracy in conductive adhesive application and the provision of a margin for ensuring a quartz crystal element mounting location. Additionally, it is possible to reduce quality risks by carrying out processes ranging from wafer cleaning to bonding in a vacuum environment.

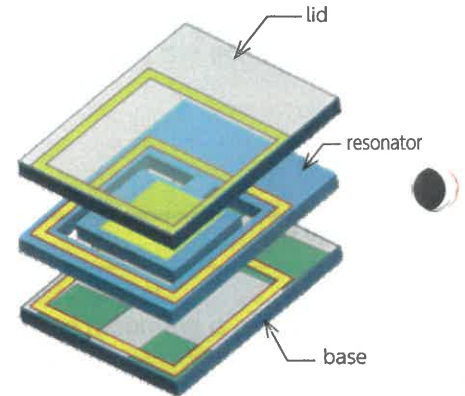


Fig.1 Structure of the Arkh.3G

Photolithography Wafer Process

Assembly process



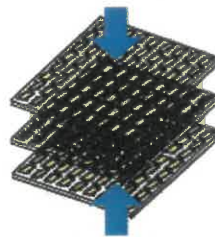
Outline formation



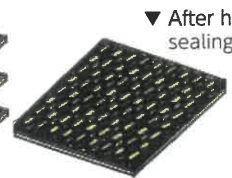
Electrode formation



Frequency adjustment



Hermetic sealing



Completion

▼ After hermetic sealing

▲ After dicing

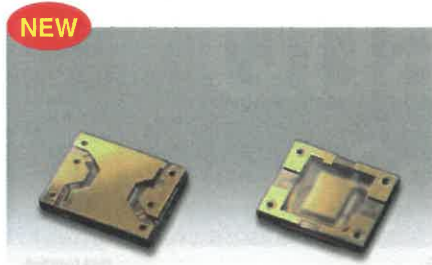
About Mounting and Usage of the Arkh.3G

The Arkh.3G can be soldered to circuit boards with a pick-and-place machine in the conventional manner. It can also be built into an IC package or used for wire bonding or molding.

* Note that, as with conventional products, the Arkh.3G is subject to resonance fracture or damage, depending on conditions such as ultrasonic cleaning and molding pressure. Therefore, it is necessary to check the Arkh.3G in advance under your particular operating conditions.

SMD Crystal Resonators / MHz Band Crystal Resonators

DX1008JS



Actual size □

■ Features

- 1008 size, height 0.13mm max.
- Unprecedented extremely low-profile package using a novel structure
- Composed only of quartz crystal plates and metallic films without the use of a ceramic base
- Long-term high resistance to aging, due to avoiding the use of an organic conductive adhesive
- Reduced risk of the inclusion of foreign matter due to assembly in a vacuum environment

■ Applications

- Mobile communications and short-range wireless modules
- Wearable devices
- Automotive millimeter-wave radar



Pb-Free



RoHS Compliant

■ Standard Specification

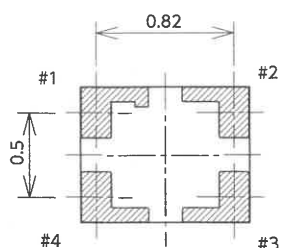
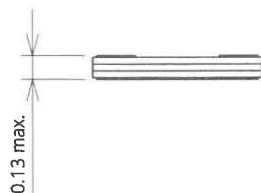
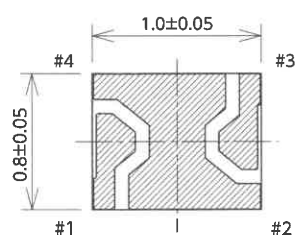
Item	Type	DX1008JS				
		48MHz	52MHz	80MHz	96MHz	120MHz
Frequency Range		48MHz	52MHz	80MHz	96MHz	120MHz
Overtone Order		Fundamental				
Load Capacitance		8pF, 10pF, 12pF				
Drive Level		10μW (100μW max.)				
Frequency Tolerance		±20×10 ⁻⁶ (at 25°C)				±100×10 ⁻⁶ (at 25°C)
Series Resistance		100Ω max.	60Ω max.		40Ω max.	
Frequency Characteristics over Temperature		±30×10 ⁻⁶ / -30 to +85°C (Ref.To 25°C)				
Storage Temperature Range		-40 to +85°C				
Packing Unit (1)		3000pcs./reel (φ180)				

(1) Moisture prevention packing is unnecessary.
Moisture Sensitivity Level: LEVEL1 (IPC/JEDEC J-STD-033)

Consult our sales representative for other specifications

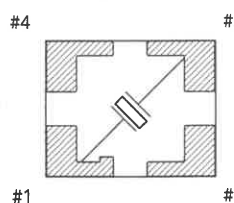
[mm]

■ Dimensions



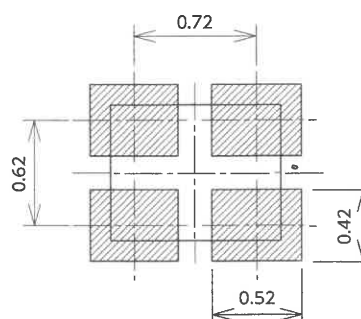
■ Internal Connections

〈Top View〉



■ Recommended Land Pattern

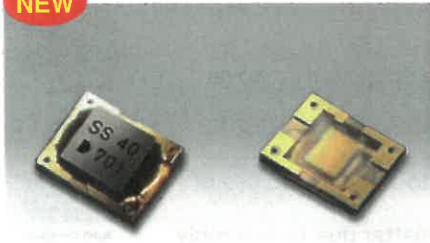
〈Top View〉



SMD Crystal Oscillators

DS1008JS

NEW



Actual size ◻

Features

- 1008 size, height 0.24mm max. Unprecedented extremely low-profile package using a novel structure
- Available frequency range : 1 to 100MHz
- Supply Voltage : +1.8V to +3.3V
- 3-state function
- Available up to 100MHz by using AT cut fundamental resonator. Low jitter provides for high performance.



Applications

- Mobile communications and short-range wireless modules
- Wearable devices
- Automotive multimedia device

Standard Specification

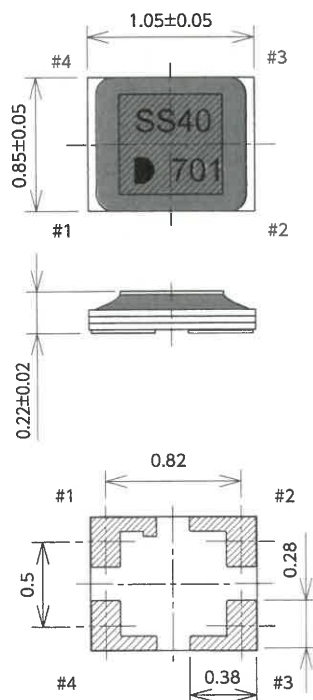
Item	Type	Legend	Spec.			Unit	Condition	
			min.	typ.	max.			
Frequency Range		f ₀	1	—	100	MHz		
Supply Voltage		V _{cc}	+1.6	—	+3.6	V		
Frequency Tolerance (Includes frequency tolerance at room temperature.)		f _{tol}	-100	—	+100	× 10 ⁻⁶	-40 to +125°C	-20 to +70°C (Standard Operating Temperature Range)
			-50	—	+50			
			-30	—	+30		-30 to +85°C	
			-20	—	+20			
Current Consumption		I _{cc}	—	—	1.8	mA	f ₀ =24MHz, V _{cc} =+1.8V, No Load	
Stand-by Current (#1 pin "L" Level)		I _{std}	—	—	0.01	mA		
Load Condition		L _{CMOS}	—	—	15	pF		
Symmetry		SYM	45	50	55	%	at 50% V _{cc} , f ₀ <60MHz	
Rise and Fall Time		t _r , t _f	—	—	5	ns	10 to 90% V _{cc} Level	
Output Enable Time		t _{PZL}	—	—	2	ms		
Output Disable Time		t _{PLZ}	—	—	200	ns		
OE Pin 1 Level Input Voltage		V _{IH}	V _{cc} ×0.8	—	—	V		
OE Pin 0 Level Input Voltage		V _{IL}	—	—	V _{cc} ×0.2	V		
Packing Unit (1)	3000pcs./reel (φ 180)							

(1) Moisture prevention packing

Consult our sales representative for other specifications

[mm]

Dimensions



Pin Connection

Pin No.	Connection
#1	OE (Output Enable)
#2	GND
#3	Output
#4	V _{cc}

Function

#1 input	#3 Output condition
H	Oscillation out
Open	Oscillation out
L	High Z

Recommended Land Pattern

<Top View>

